

DUKE POWER COMPANY
POWER BUILDING
422 SOUTH CHURCH STREET, CHARLOTTE, N. C. 28242

WILLIAM O. PARKER, JR.
VICE PRESIDENT
STEAM PRODUCTION

January 29, 1980

TELEPHONE: AREA 704
373-4083

Mr. J. P. O'Reilly, Director
U.S. Nuclear Regulatory Commission
Region II
101 Marietta Street, Suite 3100
Atlanta, GA 30303

Re: Oconee Nuclear Station, Unit 3
Docket No. 50-287

Dear Mr. O'Reilly:

My letter of August 18, 1978, transmitted Reportable Occurrence Report RO-287/78-12 concerning an atypical weldment on the Unit 3 reactor vessel.

In August 1979, Babcock & Wilcox, the Oconee 3 NSSS vendor, submitted to the NRC a report entitled "Evaluation of the Atypical Weldment," BAW-1556. By letter dated December 13, 1979, the NRC Staff reported the results of their review and stated that the administratively applied pressure-temperature operating limits may be removed from those plants whose Technical Specification were not modified to include limits based on the atypical weld material.

Based on the above, the heatup and cooldown limitations contained in the Oconee Technical Specifications for Unit 3 will be used rather than the interim pressure-temperature limits that were committed to by my letter of August 18, 1978.

Very truly yours,

William O. Parker, Jr.
William O. Parker, Jr. *By [Signature]*

RLG/sch

cc: Director, Office of Nuclear Reactor Regulation



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ACCESSION NBR: 8002060329 DOC. DATE: 80/01/29 NOTARIZED: NO
 FACIL: 50-287 Oconee Nuclear Station, Unit 3, Duke Power Co.
 AUTH. NAME: PARKER, W.O. AUTHOR AFFILIATION: Duke Power Co.
 RECIPIENT NAME: O'REILLY, J.P. RECIPIENT AFFILIATION: Region 2, Atlanta, Office of the Director

DOCKET #
05000287

SUBJECT: Advises that heatup & cooldown limitations contained in site Tech Spec will be used concerning atypical weldment on reactor vessel. Changes committed action in 780818 ltr re RO-287/78-12 based on subsequent NRC approval.

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for

Duke Power Company

cc:

Mr. William L. Porter
Duke Power Company
P. O. Box 2178
422 South Church Street
Charlotte, North Carolina 28242

Mr. Francis Jape
U. S. Nuclear Regulatory Commission
P. O. Box 7
Seneca, South Carolina 29678

Mr. Robert B. Borsum
Babcock & Wilcox
Nuclear Power Generation Division
Suite 420, 7735 Old Georgetown Road
Bethesda, Maryland 20014

Manager, LIS
NUS Corporation
2536 Countryside Boulevard
Clearwater, Florida 33515

Oconee Public Library
201 South Spring Street
Walhalla, South Carolina 29691

Suggested changes to draft letter to Bruce Johnson

Paragraph 3: Delete and replace with:

With respect to license conditions 25 and **31**, the terminology "no detectable free standing liquids" will **be** defined as less than 1% liquid by volume until December **31**, 1980. Effective January 1, 1981, waste packages shall contain only trace quantities (not more than 0.5% or 1 gallon **per** container; whichever is less) of free standing liquids. Any liquids present in waste packages which are allowable until December 31, 1980 shall be non-corrosive with respect to the container. Effective January 1, 1981 the allowable trace quantities of liquid shall be non-corrosive.

Paragraph 4: Delete and replace with:

It is the goal of South Carolina to enhance the stability of the waste forms consigned for burial. To that end, ^{acid} high level resins *with an activity* ($> 10^4$ Ci/cc of isotopes with half lives greater than ⁵ ~~10~~ years) disposed of after July 1981 must **be stabilized by solidification or an equivalent method such as packaging dewatered resins** in a high integrity container e.g. reinforced **concrete**.

90% - 1% of content

Colombo's work

$$1 \mu \text{Ci/cc} - 5 \text{ Ci}/200 \text{ ft}^3 - 60 \text{ mCi}/1.3 \text{ ft}^3$$

Suggested changes to draft letter to Bruce Johnson

Paragraph 3: Delete and replace with:

With respect to license conditions 25 and 31, the terminology "no detectable free standing liquids" will be defined as less than 1% liquid by volume until December 31, 1980. Effective January 1, 1981, waste packages shall contain only trace quantities (not more than 0.5% or 1 gallon per container; whichever is less) of free standing liquids. Any liquids present in waste packages which are allowable until December 31, 1980 shall be non-corrosive with respect to the container. Effective January 1, 1981 the allowable trace quantities of liquid shall be non-corrosive.

Paragraph 4: Delete and replace with:

It is the goal of South Carolina to enhance the stability of the waste forms consigned for burial. To that end, ~~high level~~ ^{STEP} resins ($>10\mu$ Ci/cc of isotopes with half lives greater than ~~10~~ ^{STEP} years) disposed of after July 1981 must be stabilized by solidification or an equivalent method such as packaging dewatered resins in a high integrity container e.g. reinforced concrete.

Mr. Bruce W. Johnson
Page 2

It is anticipated that your company will immediately inform your customers of the changes in the amended license and the forthcoming requirements. Should you have any questions, please do not hesitate to contact me.

Very truly yours,

Heyward G. Shealy, Chief
Bureau of Radiological Health

HGS:mig

Enclosure

cc: Mr. Herbert R. Oakley
Vice-President of Nuclear Sites

Mr. Louis E. Reynolds
Director, Regulatory Affairs

Mr. Lee B. Hebbard
Barnwell Site Manager

Mr. David G. Ebenhack
Manager, Health & Safety

South Carolina

Department of
Health and
Environmental
Control

ATTACHMENT 3

DRAFT

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2600 Bull Street
Columbia, S.C. 29201

Mr. Bruce W. Johnson, President
Chem-Nuclear Systems, Inc.
P.O. Box 1866
Bellevue, Washington 98009

Dear Mr. Johnson:

Your South Carolina Radioactive Material License No. 097 has been amended in its entirety by Amendment No. 26. The enclosed license supersedes the original license and all previous amendments.

Amendment of your license was necessary to further define the requirement that there shall be no detectable free standing liquids contained in radioactive waste received and buried at the Barnwell Facility. Other changes reflect clarification of existing license conditions and additional requirements as previously discussed with the Barnwell Site management.

With respect to license conditions 25 and 31, the terminology "no detectable free standing liquids" will presently be defined as less than 1% liquid by volume. However, our goal will be to allow only trace quantities (0.5% or 1 gallon per container: whichever is less) of non-corrosive liquids due to condensate.

Dewatered resins, i.e., resins from which all detectable free standing liquids have been removed, will be acceptable for receipt and disposal at the facility until December 31, 1980. Effective January 1, 1981, all ion exchange resins received for burial shall be solidified with an appropriate solidification media approved by the Department and shall contain only trace quantities of free standing liquids. A future amendment will be forthcoming to reflect this requirement.

ITINERARY
NUCLEAR REGULATORY COMMISSION VISIT
COLUMBIA, SOUTH CAROLINA--OCTOBER 17, 18, 19, 1979

TRIP PURPOSE: Meet with South Carolina technical and policy officials to review pending NRC low-level radioactive waste regulation and implementation timetable, and discuss associated issues.

NRC OFFICIALS MAKING THE TRIP:

Cathy Schneider-----	Office of State Programs
Robert Brown-----	Office of Nuclear Material Safety & Safeguards
Dale Smith-----	Low Level Waste Management Operations
Dick Bangart-----	Office of Nuclear Reactor Regulation
Lake Barrett-----	Office of Nuclear Reactor Regulation
Pat Camille-----	Office of Standards Development
Ken Perkins-----	Office of Standards Development
George Bidinger-----	Office of Inspections & Enforcement
Jim Dieckhoner-----	DOE Low Level Waste Office
George Levin-----	DOE LLW Contractor, Idaho National Laboratory

WEDNESDAY, OCTOBER 17

NRC Staff arrivals and afternoon meetings with Heyward Shealy, S.C. DHEC.

THURSDAY, OCTOBER 18

9:00-10:00am	Governor's Conference Room, State House Meeting with David Reid, Executive Assistant
10:00-11:30am	Travel to Chem-Nuclear LLW Disposal Facility
11:30-12:30pm	Lunch (Somewhere in route to C-N, Barnwell?)
12:30- 3:00pm	Tour Chem-Nuclear
3:00- 4:00pm	Return to Columbia
4:00- Open	Meeting with Div. of Energy Resources & Joint Legislative Committee on Energy Staff (place to be determined).

FRIDAY, OCTOBER 19

9:00am-5:00pm	Room 507, Gressette Office Building - Informal discussion of following low-level radioactive waste topic areas:
	1 - Waste Forms, particularly dealing with free-standing liquids
	2 - High volume, low specific activity waste
	3 - Regionalization of waste sites and programs
	4 - DOE-vs.-NRC roles in LLW planning
	5 - Need for stepped up inspection activities on the part of NRC and Agreement States
	6 - Inspection focus: at waste originator-vs.-waste disposal facility
	7 - Follow-up status report to recent NRC/DOT visit to S.C.

PARTICIPANTS IN THE OCTOBER 17-19, 1979 MEETING
IN COLUMBIA, SOUTH CAROLINA
TO DISCUSS LOW-LEVEL RADIOACTIVE WASTE

Cathy Schneider, Office of State Programs
Robert Brown, Office of Nuclear Material Safety & Safeguards
Dale Smith, Low Level Waste Management Operations
Dick Bangart, Office of Nuclear Reactor Regulation
Lake Barrett, Office of Nuclear Reactor Regulation
Ken Perkins, Office of Standards Development
George Bidinger, Office of Inspection & Enforcement
Jim Dieckhoner, DOE Low Level Waste Office
George Levine, DOE LLW contractor, Idaho National Laboratory
David Reid, Executive Assistant to Governor Riley
Lamar Priester, Director, S. Carolina Div. of Energy Resources
Larry LeFebvre, Deputy Dir. of Policy Analysis & Planning,
Division of Energy Resources
Joyce Marchand, Staff of S. Carolina Joint Committee on Energy
Heyward G. Shealy, Chief, Bureau of Radiological Health,
South Carolina Department of Health &
Environmental Control (DHEC)
Emory Williams, Bureau of Radiological Health, DHEC
Virgil Autry, Bureau of Radiological Health, DHEC
Bill House, Bureau of Radiological Health, DHEC
Mike Tkacik, Bureau of Radiological Health, DHEC
Herbert R. Oakley, Director of Nuclear Sites, Chem-Nuclear Systems, Inc.

The afternoon was spent meeting with DHEC officials to reach agreement on the wording of the letter to B. Johnson, as discussed in the second paragraph of this report. A summary of the agreed upon DHEC positions is as follows:

1. "No detectable free standing liquids" will be defined as less than 1% liquid (non-corrosive with respect to the container) by volume until December 31, 1980. Effective January 1, 1981, waste packages shall contain only trace quantities (not more than 0.5% of 1 gallon per container, whichever is less) of free standing non-corrosive liquids.
2. To enhance the stability of waste forms, resins with an activity level of long-lived (greater than $t_{1/2} = 5$ years) isotopes greater than 1 uCi/cc disposed of after July 1981 shall be stabilized by solidification or an equivalent method, such as packaging dewatered resins in a high integrity container, e.g. reinforced concrete.

The high integrity container alternative was proposed by DOR and South Carolina may, in the future, request NRC to review for acceptability containers that may be proposed for use. DOR has lead action for developing acceptance criteria for use in the review of improved burial containers.

The day ended with a tour of DHEC's laboratory and mobile radiological analysis facilities. From both the NRC's and South Carolina's standpoints, an informative and constructive interchange had been accomplished during the 3-day period.

Enclosures:

1. Attendee list
2. Itinerary for Trip
3. Draft letter to President of Chem-Nuclear, Inc.
4. Initial Comments on draft letter to Chem-Nuclear
5. Final Comments on draft letter to Chem-Nuclear

Bureau of Radiological Health, DHEC. For over an hour the South Carolina officials, lead by Mr. Reid, explained the policies of Governor Riley with respect to the burial ground operations at Barnwell and low-level waste management in general. It was stated the volume of waste authorized for burial will be reduced over the next two years to 1/2 of that volume now authorized. Mr. Reid made it clear that enforcement actions including the issuance of Orders to prohibit shipment of waste into South Carolina, will be taken against those who ship or transport waste that is not in compliance with applicable state or federal regulations. Statutory authority to issue civil penalties against violators is also being sought. Mr. Reid strongly urged the NRC to take actions which will lead to the creation of more burial ground facilities in the U.S. in order to lift the burden that South Carolina is facing. He suggested such actions as early publication of 10 CFR Part 61, "Disposal of Low-Level Radioactive Waste and Low Activity Bulk Solid Waste," NRC review of burial ground license applications in advance of the adoption of 10 CFR Part 61, and not issuing operating licenses to nuclear power plants unless adequate low-level waste disposal capacity can be predicted for the life of the plant. In addition, Mr. Reid emphasized that in a November 6, 1979 meeting to be held with Chairman Hendrie the Governors of South Carolina, Nevada and Washington will be seeking additional "guarantees" that inspection efforts will be increased to provide further assurances that only waste that is in compliance with applicable regulations will be shipped. Other NRC actions that demonstrate that positive steps are being taken to solve the problems of low-level waste are being sought also.

The remainder of October 18 was spent by NRC and DOE representatives, accompanied by H. Shealy, visiting the burial ground at Barnwell, South Carolina. After a briefing by H. R. Oakley, Vice President of Nuclear Sites, Chem-Nuclear Systems, Inc., the group toured the site. We observed the administrative areas, trucks lined up waiting to enter the site, the control building for site access, the storage area for new liners (manufactured locally), the "slit" trench for burial of irradiated components, the completion of a liner offloading into the burial trench, offloading of drums (shoved from the back of a truck at the edge of the trench), stacking of LSA wooden boxes within the trench with a forklift, earth-moving operations, monitoring wells and standpipes in the trenches, markers designating completed trenches, radiation surveying operations, and South Carolina and NRC inspection activities. The site employs over 100 people and is authorized presently for disposal of 2.1 million ft³ of waste per year. The trenches are backfilled so that a 10 foot layer of clay is placed on top of the waste. Information brochures on Chem-Nuclear Services, Inc. were distributed and may be obtained from R. L. Bangart for review.

The morning of October 19 was spent meeting with L. Priester, L. LeFebvre (both of Division of Energy Resources) and Joyce Marchand (with the Staff of the Joint Committee on Energy) to discuss the topics identified on the itinerary. These discussions were mostly concerned with the definition of responsibilities between NRC and DOE, short and long range programs of DOE, and South Carolina's concerns about and relationships to the federal programs. During this meeting, South Carolina officials emphasized their belief that reactor licensee applications should be reviewed for the determination that adequate low-level waste disposal capacity exists.

Enclosure 2

REPORT OF MEETING ON RADIOACTIVE LOW-LEVEL WASTE
WITH SOUTH CAROLINA OFFICIALS, OCTOBER 17-19, 1979

NRC representatives from NRR, NMSS, SD, SP, IE, DOE and EG&G-Idaho (DOE lead contractor for low level waste) met with officials from the State of South Carolina (see Attachment No. 1) and visited the low-level waste burial site at Barnwell, South Carolina. The meeting was held as the result of an earlier discussion between Ken Perkins, SD, and Lamar Priester, Director, South Carolina Division of Energy Resources, at which a commitment was made to hold an information exchange meeting among the concerned State and federal agencies. Another purpose for meeting was to discuss specifically the revision being made by the South Carolina Department of Health and Environmental Control (DHEC) to the license that is issued to Chem-Nuclear Systems, Inc. to operate the Barnwell facility. A copy of the itinerary for the trip is enclosed as Attachment 2.

On the afternoon of October 17, R. L. Bangart (DSE/NRR), L. H. Barrett (DOR/NRR), G. Bidinger (IE), K. Schneider (SP), and R. Dale Smith (WM/NMSS) met with Heyward Shealy (DHEC) and members of his staff to discuss the Order issued to Commonwealth Edison prohibiting low-level waste transport into South Carolina, and to discuss the contents of a draft letter to the president of Chem-Nuclear Systems, Inc. which explains the implementation policy of South Carolina regarding free standing liquid and resin solidification. At this meeting G. Bidinger invited DHEC inspectors to accompany IE inspectors on inspections of waste management programs of NRC licensees which DHEC had identified as problem shippers (such as Commonwealth Edison). NRC representatives suggested that some modifications to the DHEC draft letter (Attachment 3) to B. Johnson of Chem Nuclear regarding free standing liquid and resin solidification might be appropriate. H. Shealy agreed to discuss our recommended changes. After discussions among NRC representatives on the evening of October 17, suggested changes (as shown in Attachment 4) were given to H. Shealy on October 18. After discussions held on the afternoon of October 19, the changes shown in Attachment 5 were agreed to by DHEC and NRC as being appropriate. During this meeting, both NRR and IE representatives agreed that low-level waste from reactor sites should contain no (zero) free standing liquids at the time of shipment. However, because of factors which occur during transportation (such as freeze-thaw cycling and vibrational effects), it is recognized by both DHEC and NRC that small quantities of liquid may be present at the time of burial.

October 18 began with all NRC and DOE representatives shown on Attachment 1 meeting with David Reid, Executive Assistant to Governor Riley, Lamar Priester, Director, South Carolina Division of Energy Resources, Larry LeFebvre, Deputy Director of Policy Analysis and Planning, Division of Energy Resources, and Heyward Shealy, Chief,

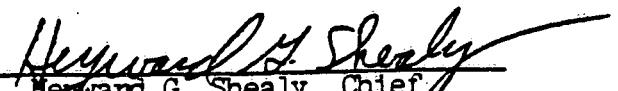
Conditions - Site

54. Prior to May 31, 1980, a preliminary plan for preparation of the site for transfer to another person who would only passively hold the site shall be submitted for review. The plan shall be consistent with Condition 53. of this license and shall include demonstration that funds are being set aside or other measures being taken are adequate to finance the site closure plan. The plan shall also include preliminary estimates of costs, environmental impacts, data needs, personnel needs, material and equipment needs, planned documentation and quality assurance, and detailed plan for trench locations and elevations, expected capacities, planned surface contours, and buffer zones.
55. Prior to May 31, 1980, a reassessment of current operating practices shall be submitted. The reassessment shall consider the objectives of the site plan specified in the preceding paragraph and any changes in operation at the site which would enhance implementation of the plan.
56. The licensee shall submit an updated plan and operational assessment every five years for review.
57. One year prior to the anticipated transfer of the site and buried radioactive materials to another person (including an agency of the U.S. Government) the licensee shall submit a final version of the site preparation plan including a schedule for implementation of all remaining plan elements prior to transfer, and a description of the mechanics of orderly transfer in coordination with the transferee.
58. Except as specifically provided otherwise by this license, the licensee shall possess and use radioactive material described in Condition 20. of this license in accordance with statements, representations, procedures, and site criteria, heretofore made by the licensee in application for and subsequent to the issuance of S. C. Radioactive Material License No. 097, and amendment thereto.

For The South Carolina Department
of Health and Environmental Control

Date of Issuance October 30, 1979

BY:


Hayward G. Shealy, Chief
Bureau of Radiological Health

Conditions - Site

48. All wells constructed at the site specified in Condition 5. of this license shall be protected from damage.
49. Interim or final grades shall be established and seeding of trench covers shall commence at no more than one year following final trench burial operations.
50. A series of granite markers, one at the end of each completed trench and on each corner, shall be erected upon completion of the seeding of trench covers. The following information shall be inscribed on the end monument, and this information shall be reported to the Chief, Bureau of Radiological Health, South Carolina Department of Health and Environmental Control, 2600 Bull Street, Columbia, South Carolina 29201.
 - a. Total activity of radioactive material in curies excluding source and special nuclear materials, total amount of source material in pounds, and total amount of special nuclear material in grams in the trench.
 - b. Date of completion of the burial operations; and
 - c. Volume of waste in the trench.
51. The licensee may not exhumate previously buried waste.
52. As material buried may not be transferred by abandonment or otherwise, unless specifically authorized by the Department, the expiration date on this license applies only to the above ground activities and to authority to bury radioactive material wastes at the site specified in Condition No. 5. The license continues in effect and the responsibility and authority for possession of buried radioactive material wastes continues until the Department finds that the plan established for preparation of the Barnwell site for transfer to another person has been satisfactorily implemented in a manner to reasonably assure protection of the public health and safety and the Department takes action to terminate your responsibility and authority under this license. All requirements for environmental monitoring, site inspection, and maintenance, and site security continue whether wastes are being buried or not.
53. Site closure and stabilization of the licensee's facility shall be accomplished in accordance with the U. S. Nuclear Regulatory Commission's Low-Level Waste Branch Position entitled, "Low-Level Waste Burial Ground Site Closure and Stabilization," Revision 1 dated May 17, 1979. A copy of the performance objectives is attached.

Conditions - Site

40. Monitoring wells in clusters will be placed outside the trenches but in the trench area. Specific locations shall be determined through consultation. The initial well of a cluster will be core drilled to the water table and a representative sample of the core shall be submitted to the Department. The depth and number of additional wells in the cluster are to be determined by the sand-clay composition observed in the initial core. All wells shall be grouted, sealed, and capped.
41. The licensee shall not initiate burial operations in newly excavated trenches until the Department has inspected and approved the trenches. An initial inspection will be made by the Department upon completion of excavation of the trench, sumps, french drain inside the trench, drainage ditches adjacent to the trench and installation of monitoring well standpipes. An intermediate inspection will be made by the Department after the french drain and sumps have been filled with rock. A final inspection will be made by the Department upon completion of construction requirements per Trench Construction Detail Drawings No. 500.101 dated December 12, 1978.
42. Each well and "Toner Tube" must be sufficiently capped or covered to prevent the introduction of any extraneous material.
43. Open trenches and partially filled trenches shall be protected to prevent runoff water from entering trenches. Radioactive waste shall not be placed into trench areas where water has accumulated. Burial of radioactive waste into trenches with unusual amounts of water shall immediately cease until corrective action has been taken and origin of water determined.
44. The licensee shall maintain a minimum of two feet of compacted clay between the last layer of waste and the surface of the ground. Backfilling shall commence immediately as waste reaches the top elevation of the trench. Uncovered wastes shall not extend more than 100 feet beyond the backfilled portion of the trench. Upon completion of burial operations in a burial trench, the licensee shall add an additional three feet minimum of earth on top of the two foot cover. Completed trenches shall at no time be used for stockpiling earth not withstanding provisions for a final grading plan.
45. The cover over the completed burial trenches at the site specified in Condition 5. of this license shall be maintained to minimum erosion.
46. The disposal area and cover of the trenches shall be arranged and graded in such a manner that all surface runoff water shall be completely removed from the vicinity of the trenches.
47. Temporary trench boundary markers and trench identification markers shall be erected upon completion of backfill operations until permanent granite markers are installed.

Conditions - Waste

35. Effective November 1, 1979, the licensee shall insure that each Radioactive Shipment Record form used to describe a low-level radioactive waste shipment received at the Barnwell Site has the following certification properly executed by a representative of the shipper/generator of the waste:

"Certification is hereby made to the South Carolina Department of Health and Environmental Control that this shipment of low-level radioactive waste has been inspected in accordance with the requirements of South Carolina Radioactive Material License No. 097, as amended, U. S. Nuclear Regulatory Commission License No. 46-13536-01, as amended, and the effective Barnwell Site Disposal Criteria within 48 hours prior to shipment; and further certification is made that the inspection revealed no items of non-compliance with all applicable laws, rules and regulations.

Date: _____ By: _____

Title and Organization: _____

Telephone No. () _____ "

36. The licensee shall insure that any package used as the final burial container shall be of such material and construction that there will be no significant chemical, galvanic, or other reaction among the packaging components, or between the packaging components and the package contents.
37. The licensee may bury Krypton 85 and Xenon 133 gaseous sources provided they meet the following criteria:
- (a) Burial containers must be approved by the Department of Transportation.
 - (b) Internal pressure of containers may not exceed 1.5 atmospheres.
 - (c) Total activity of containers may not exceed 100 curies each.
 - (d) Containers must be buried in an upright position with a minimum spacing of ten (10) feet.

Conditions - Site

38. A registered surveyor must verify and document the location of each trench: (a) prior to the beginning of trench construction; (b) at the completion of trench construction, prior to the initiation of the burial operations; and (c) at the completion of the grading and seeding operation.
39. Construction of radioactive waste burial trenches, slit trenches, "Toner Tubes", trench monitoring wells and site cluster wells shall be constructed as specified in Chem-Nuclear Systems, Inc., Trench Construction Detail Drawings No. 500.101, dated December 12, 1978. Any changes to these specifications must have approval from the Department before construction begins.